Commencement Address

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by
Richard D. Klausner, M.D.

A commencement address should be memorable and contain some useful, if not sagacious, advice. I thought back 25 years to my own graduation and quickly realized I didn't remember a thing the commencement speaker said, nor who the commencement speaker was. In fact, it was only later that I remembered that there was no commencement speaker. With that realization, the pressure to be memorable immediately faded, to my great relief.

Memory--how powerful, yet how amazingly problematic.

We all frequently and consciously struggle with our failure to remember what happened. Equally, we all frequently but unconsciously struggle with what we remember that actually never happened, or at least not the way we remember it.

The great developmental psychologist, Jean Piaget, wrote of a profoundly important early childhood memory of actually being kidnapped and later safely returned to his family. Years later, it turned out the kidnapping was a tale told by his nanny to cover for her failure to return home while having an illicit tryst.

A recent commencement speaker in New York, a memory expert, spoke of his clear early childhood memory of first hearing that Pearl Harbor had been bombed and WW II had started for America. He distinctly remembered being at a major league baseball game on a clear day when the whole crowd was shocked by the loudspeaker announcing the momentous news. A compelling memory--but even in 1941, and even in Brooklyn, the baseball season did not last until early December.

Memory is, of course, what we think we know best. The internal trace, the audio video recording of our own experience is memory. In a sense, the knowledge we trust most and rely on most strongly, is memory. Why is it that memory can be so unreliable? How is it that it can be so distorted in its retrieval? Why is it so selective? Perhaps the emerging insights of the neurobiology of memory helps us explain this. Experiences, it seems, are not stored whole. Rather, they are amazingly fragmented, with bits and pieces scattered in different regions of the brain. In remembering, the memory is literally reconstructed. Perhaps this is the source of the type of memory mischief I described to you.

What do these musings about memory have to do with the fact that you are graduating from college?

For one thing, from this moment on, college is and will always be a memory.

So what will you remember?

You will remember staying up all night to study for an exam or finish a paper--but, you won't have the vaguest recollection about the subject of the exam or the content of the paper. For those who lived on South Campus, you will remember that you had an 8 o'clock class on North Campus, but you will probably remember little what you heard in that class, even after you woke up.

You will remember finally beating Michigan, but, unfortunately, you will also remember Michigan State.

One might reasonably ask, with my assertion of the fragmented and incomplete memory of college you will all be left with, what exactly are you taking with you as you leave OSU?

In fact, it would be no great gift if the university simply filled you with knowledge perfectly remembered. As a scientist, I would hope rather that the gift you walk away from here with is actually the freedom from memory, or at least the freedom from unquestioned memory. As a scientist, I hope the gift you walk

away from here with are the skills and confidence of inquiry not just the memory of things learned. Not accepting truth because it comes from authority but because it comes from the power of evidence. That to me, is the overarching message that science has for all of us, both scientists and non-scientists. Recognizing the imperfection of memory is itself a great lesson. The rigid truth that is too often ascribed to memory is not only illusory, it can be dangerous. We see the danger of confusing truth with memory all around this world. In the Middle East, in the Balkans, in Central Africa--where memories as rallying cries under banners of history are recalled and mis-remembered for generations, yielding the certainty that only fanatics live by.

The difficulty of perfectly reconstructing the past prepares and encourages us for the possibilities of future change. A description of the power of this idea in music by the novelist Ian McEwan describes just this necessity for variation in a remembered melody. He writes: "... A crucial feature of the work's conclusion; it needed to suggest the future's unknowability. When that by now familiar memory returned for the very last time, altered in some small and significant way, it should prompt uncertainty in the listener; it was a caution against clinging too tightly to what we know."

In many ways, the struggle between the continually rediscovered truth of evidence-based conclusions and the types of fixed certainty that memory and personal experience leads us to believe in, is at the core of my own responsibilities as the head of the National Cancer Program. The National Cancer Institute is a remarkable public institution of research and science dedicated to the proposition that knowledge comes from evidence and only knowledge so gained, and our capacity to act on that knowledge, as individuals and as a society, will conquer cancer. It is a tall order. Look around you. Almost every other person here will be diagnosed with cancer at some point in your lives.

The knowledge we will need to conquer cancer must replace areas of great ignorance about what causes cancer, how to prevent it, and how to treat it. Creating useful knowledge is always a challenge. That said, replacing ignorance with knowledge is relatively easy, like filling an empty space. It is much harder to replace preconceived notions, intuitions, what we think we know from our own experience, with evidence-based knowledge. Maybe there is no poison in the water on which to blame the cancer our neighbor developed. Or maybe there is. The well-meaning physician remembers a cancer patient who recovered after a treatment whose effectiveness is untested and unproven. Convinced that the experience of this powerful memory of association revealed cause and effect and not coincidence, he recommends the treatment to others. Compelled by such

memory, we fail to ask the questions that can lead to answers. We want answers but only the acquisition of evidence and not the imposition of intuition will yield them.

When it comes to health and disease, we believe our own experiences too much. We make connections and associations that are based on the compelling power of experience but not the rigor of evidence. We use those experiences to create explanations of why someone gets cancer, to argue how we can prevent cancer and to reinforce our susceptibility to claims of miraculous cures.

But, the history of medical progress has been the replacement of rigid truths borne of misinterpreted experience with dispassionate evidence; replacing the certain conviction of memory with the robust truth of discovery.

It is through exactly such a process of inquiry that we learn how to give up on the certainty of the false truths that our individual or collective memory can create.

This is why recognizing and experiencing the imperfections of our own memory is so important. If learned from, it is one of the most important lessons any of us can learn. This is why I began by reminding you of the imperfections of memory.

So I finish with the second promise of this address--advice.

My advice to you is to pay attention to all that you will forget about the marvelous four years you have spent at Ohio State. What you forget will be a reminder that experience and memory, while essential, are flawed. If you remember that, you will be a long way towards fulfilling the promise of the degree you have achieved today; a degree that signifies not the certainty of what you know but the competency to figure things out. That is my exhortation. Leave here with the habit of inquiry. Strengthen it. Let your growing experiences only grow further your confidence to ask questions. Inquiry, not memory, will not only get you through college, but through life. Do not yield to the complacency of past knowledge.

But what of your memories? As you leave here today, treasure your memories, not because they are perfect reflections of truth, but because they are interesting.

They are the stories you will tell and retell. They are the stories that will forever connect each of you to this irreplaceable time and to this special place.